ABSTRACT

An apparatus for photonic wavelength shifting and stabilization is described. The apparatus receives a photonic signal, comprised of one or more channels, and provides a wavelength shifted, stabilized, and channelized photonic signal. Data encoding is also supported. A modulation synthesizer provides a modulation waveform embedded with the shifting, stabilization and data encoding mechanisms. A variety of modulation devices are supported. The modulation waveform is optimized for the particular modulation device. A wavelength error detector provides feedback to the modulation synthesizer. The error signal is used to stabilize the photonic signal and correct channel wavelength errors. Fixed wavelength channels and spread spectrum channels are supported.

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